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UNITED STATES STANDARDS

FOR GRADES OF

PECANS IN THE SHELL

EFFECTIVE OCTOBER 15, 1976

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
WASHINGTON, D.C.

UNITED STATES STANDARDS FOR GRADES OF PECANS IN THE SHELL[1]

(41 F.R. 39303)

Effective October 15, 1976

GRADES

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AUTHORITY: Secs. 203, 205, 60 Stat. 1087, as amended, 1090 as amended; (7 U.S.C. 1622, 1624).

GRADES

§ 51.1400 U.S. No. 1.

"U.S. No. 1" consists of pecans in the shell which meet the following requirements:

(a) Free from loose extraneous or foreign material.

(b) Shells are: (1) Fairly uniform in color; and, (2) Free from damage by any cause.

(c) Kernels are: (1) Free from damage by any cause.

(d) For tolerances see § 51.1404.

[1] Packing of the product in conformity with the requirements of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act or with applicable State laws and regulations.

§ 51.1401 U.S. No. 2.

The requirements for this grade are the same as for U.S. No. 1 except for:

(a) No requirement for uniformity of color of shells; and,

(b) Increased tolerances for defects see § 51.1404.

SIZE CLASSIFICATION

§ 51.1402 Size classification.

Size of pecans may be specified in connection with the grade in accordance with one of the following classifications. To meet the requirements for any one of these classifications, the lot must conform to both the specified number of nuts per pound and the weight of the 10 smallest nuts per 100 nut sample.

Size classification	Number of nuts per pound	Minimum weight of the 10 smallest nuts in a 100-nut sample
Oversize	55 or less	In each classification, the 10 smallest nuts per 100 must weigh at least 7 pct of the total weight of a 100-nut sample
Extra large	56 to 63	
Large	64 to 77	
Medium	78 to 95	
Small	96 to 120	

KERNEL COLOR CLASSIFICATION

§ 51.1403 Kernel color classification.

(a) The skin color of pecan kernels may be described in terms of the color classifications provided in this section. When the color of kernels in a lot generally conforms to the "light" or "light amber" classification, that color classification may be used to describe the lot in connection with the grade.

(1) "Light" means that the outer surface of the kernel is mostly *golden* color or lighter, with not more than 25 percent of the outer surface darker than *golden*, none of which is darker than *light brown*

(2) "Light amber" means that more than 25 percent of the outer surface of the kernel is *light brown*, with not more than 25 percent of the outer surface darker than *light brown*, none of which is darker than *medium brown*.

(3) "Amber" means that more than 25 percent of the outer surface of the kernel is *medium brown*, with not more than 25 percent of the outer surface darker than *medium brown*, none of

which is darker than *dark brown* (very dark-brown or blackish-brown discoloration).

(4) "Dark amber" means that more than 25 percent of the outer surface of the kernel is *dark brown,* with not more than 25 percent of the outer surface darker than *dark brown* (very dark-brown or blackish-brown discoloration).

(b) U.S. Department of Agriculture kernel color standards, Pec–MC-1, consisting of plastic models of pecan kernels, illustrate the color intensities implied by the terms "golden," "light brown," "medium brown" and "dark brown" referred to in paragraph (a) of this section. These color standards may be examined in the Fruit and Vegetable Division, AMS, U.S. Department of Agriculture, South Building, Washington, D.C. 20250; in any field office of the Fresh Fruit and Vegetable Inspection Service; or upon request of any authorized inspector of such service. Duplicates of the color standards may be purchased from NASCO, Fort Atkinson, Wisconsin 53538.

Tolerances

§ 51.1404 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances are provided as specified:

(a) *U.S. No. 1*—(1) *For shell defects, by count.* (i) 5 percent for pecans with damaged shells, including therein not more than 2 percent for shells which are seriously damaged.

(2) *For kernel defects, by count.* (i) 12 percent for pecans with kernels which fail to meet the requirements for the grade or any specified color classification, including therein not more than 7 percent for kernels which are seriously damaged: *Provided,* That not more than six-sevenths of this amount, or 6 percent, shall be allowed for kernels which are rancid, moldy, decayed or injured by insects: *And provided further,* That included in this 6 percent tolerance not more than one-half of one percent shall be allowed for pecans with live insects inside the shell.

(ii) In addition, 8 percent for kernels which fail to meet the color requirements for the grade or for any specified color classification, but which are not seriously damaged by dark discoloration of the skin: *Provided,* That these kernels meet the requirements for the grade other than for skin color.

(3) *For loose extraneous or foreign material, by weight.* (i) 0.5 percent (one-half of 1 percent).

(b) *U.S. No. 2*—(1) *For shell defects, by count.* (i) 10 percent for pecans with damaged shells, including therein not more than 3 percent for shells which are seriously damaged.

(2) *For kernel defects, by count.* (i) 30 percent for pecans with kernels which fail to meet the requirements of the U.S. No. 1 grade, including therein not more than 10 percent for pecans with kernels which are seriously damaged: *Provided,* That not more than seven-tenths of this amount, or 7 percent, shall be allowed for kernels which are rancid, moldy, decayed or injured by insects: *And provided further,* That included in this 7 percent tolerance not more than one-half of one percent shall be allowed for pecans with live insects inside the shell.

(3) *For loose extraneous or foreign material, by weight.* (i) 0.5 percent (one-half of 1 percent).

Application of Tolerances

§ 51.1405 Application of tolerances.

Individual 100-count samples shall have not more than one and one-half times a specified tolerance of 5 percent or more and not more than double a tolerance of less than 5 percent, except that at least one pecan which is seriously damaged by live insects inside the shell is permitted: *Provided,* That the averages for the entire lot are within the tolerances specified for the grade.

Sample for Grade or Size Determination

§ 51.1406 Sample for grade or size determination.

Each sample shall consist of 100 pecans. The individual sample shall be drawn at random from a sufficient number of packages to form a 100-count composite sample. The number of such individual 100-count samples drawn for grade or size determination will vary with the size of the lot. When practicable, at point of packaging the sample may be obtained from the grading belt after sorting has been completed.

Definitions

§ 51.1407 Fairly uniform in color.

"Fairly uniform in color" means that the shells do not show sufficient variation in color to materially detract from the general appearance of the lot.

§ 51.1408 Loose extraneous or foreign material.

"Loose extraneous or foreign material" means loose hulls, empty broken shells,

or any substance other than pecans in the shell or pecan kernels.

§ 51.1409 Well developed.

"Well developed" means that the kernel has a large amount of meat in proportion to its width and length (see Figure 1).

§ 51.1410 Fairly well developed.

"Fairly well developed" means that the kernel has at least a moderate amount of meat in proportion to its width and length. Shriveling and hollowness shall be considered only to the extent that they have reduced the meatiness of the kernel (see Figure 1).

§ 51.1411 Poorly developed.

"Poorly developed" means that the kernel has a small amount of meat in proportion to its width and length (see Figure 1).

PECAN CROSS SECTION ILLUSTRATION

1. WELL DEVELOPED

Lower limit. Kernels having less meat content than these are not considered well developed.

2. FAIRLY WELL DEVELOPED.

Lower limit for U.S. No. 1-grade. Kernels having less meat content than these are not considered fairly well developed and are classed as damaged.

3. POORLY DEVELOPED

Lower limit, damaged but not seriously damaged. Kernels having less meat content than these are considered undeveloped and are classed as seriously damaged.

Figure 1.

§ 51.1412 Well cured.

"Well cured" means that the kernel separates freely from the shell, breaks cleanly when bent, without splintering, shattering, or loosening the skin; and the kernel appears to be in good shipping or storage condition as to moisture content.

§ 51.1413 Damage.

"Damage" means any specific defect described in this section; or an equally objectionable variation of any one of these defects, or any other defect, or any combination of defects, which materially detracts from the appearance or the edible or marketing quality of the individual pecan or the general appearance of the pecans in the lot. The following defects shall be considered as damage:

(a) Adhering hull material or dark stains affecting an aggregate of more than 5 percent of the surface of the individual shell;

(b) Split or cracked shells when the shell is spread apart or will spread upon application of slight pressure;

(c) Broken shells when any portion of the shell is missing;

(d) Kernels which are not well cured;

(e) Poorly developed kernels;

(f) Kernels which are dark amber in color;

(g) Kernel spots when more than one dark spot is present on either half of the kernel, or when any such spot is more than one-eighth inch (3 mm) in greatest dimension;

(h) Adhering material from the inside of the shell when firmly attached to more than one-third of the outer surface of the kernel and contrasting in color with the skin of the kernel; and,

(i) Internal flesh discoloration of a medium shade of gray or brown extending more than one-fourth inch (6 mm) lengthwise beneath the center ridge, or any equally objectionable amount in other portions of the kernel; or lesser areas of dark discoloration affecting the appearance to an equal or greater extent.

§ 51.1414 Serious damage.

"Serious damage" means any specific defect described in this section; or an equally objectionable variation of any one of these defects, or any other defect, or any combination of defects, which seriously detracts from the appearance or the edible or marketing quality of the individual pecan. The following defects shall be considered as serious damage:

(a) Adhering hull material or dark stains affecting an aggregate of more than 20 percent of the individual shell;

(b) Broken shells when the missing portion of shell is greater in area than a circle one-fourth inch (6 mm) in diameter;

(c) Worm holes when penetrating the shell;

(d) Rancidity when the kernel is distinctly rancid to the taste. Staleness of flavor shall not be classed as rancidity;

(e) Mold, on the surface or inside the kernel, which is plainly visible without magnification;

(f) Decay affecting any portion of the kernel;

(g) Insect injury when the insect, web or frass is present inside the shell, or the kernel shows distinct evidence of insect feeding;

(h) Kernel spots when more than three dark spots on either half of the kernel, or when any spot or the aggregate of two or more spots on one of the halves of the kernel affects more than 10 percent of the surface;

(i) Dark discoloration of the skin which is darker than dark amber over more than 25 percent of the outer surface of the kernel;

(j) Internal flesh discoloration of a dark shade extending more than one-third the length of the kernel beneath the ridge, or an equally objectionable amount of dark discoloration in other portions of the kernel; and,

(k) Undeveloped kernels having practically no food value, or which are blank (complete shell containing no kernel).

§ 51.1415 Inedible kernels.

"Inedible kernels" means that the kernel or pieces of kernels are rancid, moldy, decayed, injured by insects or otherwise unsuitable for human consumption.

Optional Determinations

§ 51.1416 Optional determinations.

The determinations set forth herein are not requirements of these standards. They may be performed upon request in connection with the grade determination or as a separate determination. Samples of pecans for these determinations shall be taken at random from a composite sample drawn throughout the lot.

(a) *Edible kernel content.* A minimum sample of at least 500 grams of in-shell pecans shall be used for determination of edible kernel content. After the sample is weighed and shelled, edible appearing half kernels and pieces of kernels shall be separated from shells, center wall, and other non-kernel material, and inedible kernels (see § 51.1415) and

pieces of kernels, and weighed to determine edible kernel content for the lot.

(b) *Poorly developed kernel content.* A minimum sample of at least 500 grams of in-shell pecans shall be used for determination of poorly developed kernel content. The amount of poorly developed kernels and pieces of kernels shall be weighed to determine poorly developed kernel content of the lot (see § 51.1411 and Figure 1).

(c) *Edible kernel content color classification.* The amount of "Light," "Light amber," "Amber," "Dark amber" and darker shades of skin color shall be determined according to § 51.1403, Kernel Color Classification. The total weight of edible kernels and pieces of kernels shall be the basis for determining color classification content for the lot.

(d) *Kernel moisture content.* The sample of pecans for determination of kernel moisture content shall be shelled immediately before analysis and all shells, center wall and other non-kernel material removed. The air-oven or other methods or devices which give equivalent results shall be used for moisture content determination.

These standards shall become effective on October 15, 1976, and will thereupon supersede the United States Standards for Pecans In The Shell which has been in effect since September 15, 1972, (7 CFR 51.1400–51.1415).

Dated: September 9, 1976.

DONALD E. WILKINSON,
Administrator.

[FR Doc.76–26886 Filed 9–14–76;8:45 am]

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